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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/796,048

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Hideki Kamada

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22850

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

STEELE, JENNIFER A

ART UNIT

PAPER NUMBER

1794

NOTIFICATION DATE

DELIVERY MODE

05/12/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/796,048	<b>Applicant(s)</b> KAMADA ET AL.	
	<b>Examiner</b> JENNIFER STEELE	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-20, 23, 24 and 27-31 is/are pending in the application.
- 4a) Of the above claim(s) 5-8 and 13-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-4, 9-12, 17-20, 23-24, 27-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Claim Objections***

- 1. Claim 9-12 objected to under 37 CFR 1.75(c) as being in improper form because it is dependent on canceled claim 5.**

***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 2. Claim 9-11 and 17-19 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Toray.** Toray teaches acrylic-vinyl blend as paper substitutes that comprise polyvinyl alcohol, polyacrylonitrile and acrylonitrile vinyl alcohol graft copolymers that are spun through noncircular orifices to form flat fibers. Toray teaches branched flattened fibers and teaches the fibers are beaten to give a pulp having freeness of 305 cm<sup>3</sup>. As to claims 9 and 17, Toray teaches beating the fibers to fibrillate into pulp. Toray refers to fibers for manufacturing paper substitutes and is referencing a process for producing wet laid nonwoven. Toray differs and does not teach a dry laid process and Toray does not teach fibrillating the fibers by

Art Unit: 1794

water jet or needlepunching. The method of preparing the nonwoven and the method of fibrillating the fibers does not distinguish the material of the current application over the prior art of Toray. It should be noted that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or an obvious variant from a product of the prior art, the claim is unpatentable even though a different process made the prior product. In re Thorpe, 227 USPQ 964,966 (Fed. Cir. 1985). The burden has been shifted to the Applicant to show unobvious differences between the claimed product and the prior art product. In re Marosi, 218 USPQ 289,292 (Fed. Cir. 1983).

As to Claim 10 and 18, Toray anticipates an **L/D** of 10-50 and teaches an **L/D** of 11 (equal to 37.5/3.4).

As to Claim 11 and 19, Toray anticipates branched flattened fibers and teaches the fibers are beaten to fibrillate and produce a pulp having freeness of 305 cm<sup>3</sup>.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claim 9-11 and 17-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Toray (JP 49100327A as published in Derwent 1975-34944W) in view of Ohmory et al (US 5,972,501).** Toray teaches acrylic-vinyl blend as paper substitutes that comprise polyvinyl alcohol, polyacrylonitrile and acrylonitrile vinyl alcohol graft copolymers that are spun through noncircular orifices to form flat fibers. Toray teaches branched flattened fibers and teaches the fibers are beaten to give a pulp having freeness of 305 cm<sup>3</sup>. As to claims 9 and 17, Toray differs and teaches beating the fibers to fibrillate into pulp and differs from the current application and does not teach a process of fibrillating the fibers by a water jet or needlepunching.

Ohmory teaches an easily fibrillatable fiber of vinyl alcohol based fibers wherein the fibers are formed by melt spinning through an orifice. Ohmory teaches the fibers can be fibrillated by method of beating or preferably by a method of applying a high-pressure water jet onto the web (col. 10, lines 59-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a method of high-pressure water jet to the fibers of Toray motivated to fibrillate the fibers to produce a fabric capable of absorption.

Art Unit: 1794

As to Claim 10 and 18, Toray teaches an **L/D** of 10-50 and teaches an **L/D** of 11 (equal to 37.5/3.4).

As to Claim 11 and 19, Toray teaches branched flattened fibers and teaches the fibers are beaten to fibrillate and produce a pulp having freeness of 305 cm<sup>3</sup>.

4. **Claim 12 and 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Toray (JP 49100327A as published in Derwent 1975-34944W) in view of Ohmory et al (US 5,972,501) and in further view of Howard (US 5230949).** Toray teaches acrylic-vinyl blend as paper substitutes that comprise polyvinyl alcohol, polyacrylonitrile and acrylonitrile vinyl alcohol graft copolymers that are spun through noncircular orifices to form flat fibers. Toray differs from the current application and does not teach a filler material.

Howard teaches fibers or filaments prepared with a filler material and extruded to form fibers that may be formed into nonwoven webs. The fillers can be minerals such as mica, montmorillonite or siliceous fillers that also include mica's vermiculite (col. 3, lines 4-25). Fillers are used to improve properties of the polymer fiber including mechanical and thermal properties. This invention is motivated to improve wettability or absorption. Howard teaches filler amounts of 10-90% by volume of fibers, but preferably between 40-60% (col. 4, lines 43-51). The average particle size of the filler is preferably 0.01-10 microns. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine to add an inorganic filler material to the polyvinyl alcohol fibers motivated to improve the properties of the PVA fibers.

5. **Claim 2-3, 23, 24 and 27-31 rejected under 35 U.S.C. 103(a) as being unpatentable over Toray (JP 49100327A as published in Derwent 1975-34944W) in view of Ueda et al (US 5,208,104).** Independent claims 23 and 24 describe Polyvinyl alcohol fibers having an extremely flattened cross-sectional profile and having a mean thickness D (micron) that satisfies the following formula (1):

$$0.4 < D < 5$$

Wherein

- D = S/L; D indicates the mean thickness (micron) of the fibers which is a mean length (micron) of the minor side of the cross section of the fibers;
- S indicates the cross-section area (micron<sup>2</sup>) of the fibers; and
- L indicates the length (micron) of the major side of the cross section of the fibers;
- Wherein said polyvinyl alcohol fibers consist of polyvinyl alcohol.

Claim 24 describes the fibers as extremely, thinly flattened.

Toray teaches acrylic-vinyl blend as paper substitutes that comprise polyvinyl alcohol, polyacrylonitrile and acrylonitrile vinyl alcohol graft copolymers that are spun through noncircular orifices to form flat fibers. Toray teaches that the flat fibers are spun through orifice sized at 0.04 x 0.5 mm (40-500 micron) to produce flat fibers with a width of 37.5 micron and thickness of 3.4 micron. The fiber thickness is equated with the current application's mean thickness D and is in the range 0.4 and 5 micron as claimed. Toray teaches a flat fiber of the dimensions of the current application and

Art Unit: 1794

teaches flat fibers that are comprised of polyvinyl alcohol, polyacrylonitrile and acrylonitrile vinyl alcohol graft copolymers.

Toray differs from the current application and does not teach a polymer produced from only PVA polymer. Ueda teaches a PVA fiber produced of a method of spinning a fiber with only PVA resin (col. 6, lines 35-38). Toray teaches a PVA graft copolymer that has the dimensions of a flat fiber as claimed in the current application and Toray presents a finding that it is known in the art to produce a PVA fiber with a flat structure.

Ueda teaches that PVA fibers can be produced that consists of only PVA and presents a finding that it is known in the art to produce a fiber that consists only of PVA. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the technique of Toray to produce a flat fiber that consists of only PVA motivated to produce a PVA fiber with the desired structure of flatness.

As to claims 2 and 27, Toray teaches an **L/D** of 10-50 and teaches an **L/D** of 11 (equal to 37.5/3.4).

As to claims 3 and 28 and 30, Toray teaches branched flattened fibers and teaches the fibers are beaten to fibrillate and produce a pulp having freeness of 305 cm<sup>3</sup>.

**6. Claim 29 and 31 rejected under 35 U.S.C. 103(a) as being unpatentable over Toray (JP 49100327A as published in Derwent 1975-34944W) in view of Ueda et al**

Art Unit: 1794

**(US 5,208,104) and in further view of Howard (US 5230949).** Toray in view of Ueda differ from the current application and does not teach a filler material.

Howard teaches fibers or filaments prepared with a filler material and extruded to form fibers that may be formed into nonwoven webs. The fillers can be minerals such as mica, montmorillonite or siliceous fillers that also include mica's vermiculite (col. 3, lines 4-25). Fillers are used to improve properties of the polymer fiber including mechanical and thermal properties. This invention is motivated to improve wettability or absorption. Howard teaches filler amounts of 10-90% by volume of fibers, but preferably between 40-60% (col. 4, lines 43-51). The average particle size of the filler is preferably 0.01-10 microns. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine to add an inorganic filler material to the polyvinyl alcohol fibers motivated to improve the properties of the PVA fibers.

### ***Response to Arguments***

7. Applicant's amendments and arguments with respect to claims 2-3 and 23-24 have been considered but are moot in view of the new ground(s) of rejection. Applicant canceled independent claim 1 and changed the dependent claims to depend on claim 23. As a result, the previous 35 USC 102(b) rejection over Toray has been withdrawn. Previous grounds of rejection 35 USC 103 over Toray in view of Ueda has been revised to incorporate claims 2-3 and new claims 27-31.

8. Previous 35 USC 102/103 rejection of claims 9 and 17 over Toray has been maintained and revised to incorporate the dependent claims 10-11 and 18-19.

Art Unit: 1794

9. Applicants argue that the claimed fibers of the present invention are hydrolysis resistant and hydrolysis occurs in the fibers of Toray. Applicants further argue that since Toray teaches use of acrylonitrile, Toray teaches away from the use of hydrolysis resistant fibers. Applicants argue that Ueda discloses use of water soluble PVA fibers. Applicant's arguments are not commensurate with the scope of the claims. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., hydrolysis resistance) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

A PVA fiber can be water soluble as disclosed in Ueda, but the reference to Ohgi (US 5,166,263) teaches polyvinyl alcohol fibers that have high strength and high water resistance. The article "Polyvinyl Alcohol Polymer" by Marten published online in the Encyclopedia of Polymer Science and Technology teaches that there is a wide variety of molecular weights and hydrolysis levels in PVA commercially available. The article continues to describe the solubility of poly(vinyl alcohol) is a function of the degree of polymerization and hydrolysis. Fully hydrolyzed PVA is only completely soluble in hot to boiling water, partially hydrolyzed grade are soluble at room temperature. Therefore the property of hydrolysis or water resistance is not necessarily inherent to the PVA polymer and is a result of the process of producing the polymer. One of ordinary skill in the art would not presume that the water resistance or water solubility is inherent to the PVA as

Art Unit: 1794

claimed and therefore the claims do not distinguish the current invention from prior art references teaching PVA fibers that have the property of water solubility.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER STEELE whose telephone number is (571)272-7115. The examiner can normally be reached on Office Hours Mon-Fri 8AM-5PM.

Art Unit: 1794

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./  
Examiner, Art Unit 1794

/Elizabeth M. Cole/  
Primary Examiner, Art Unit 1794

5/7/2009